

(No Model.)

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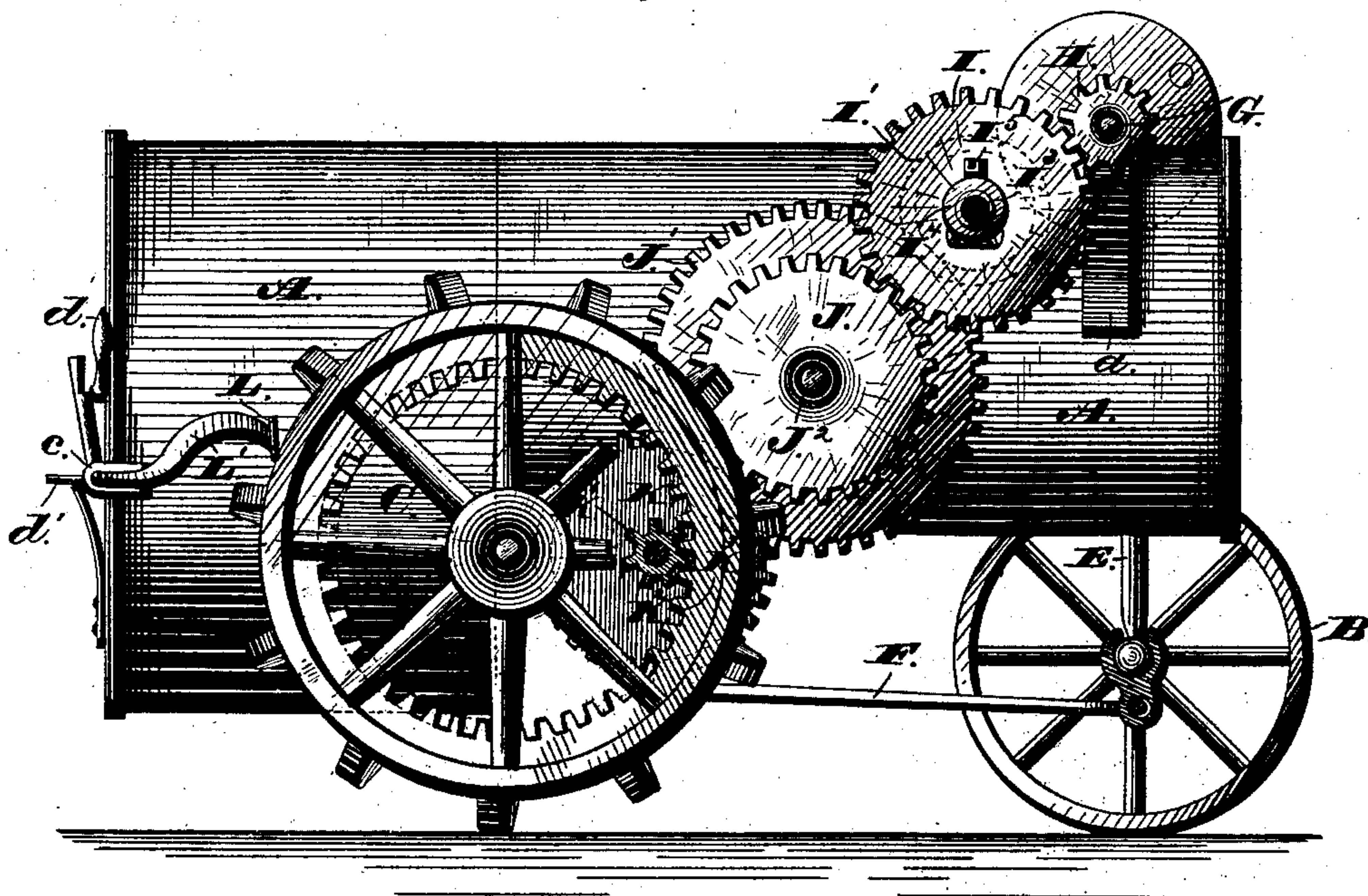
D. LIPPY & J. HUGHES.

TRACTION ENGINE.

No. 272,447.

Patented Feb. 20, 1883.

Fig. 1.



Witnesses:

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(No Model.)

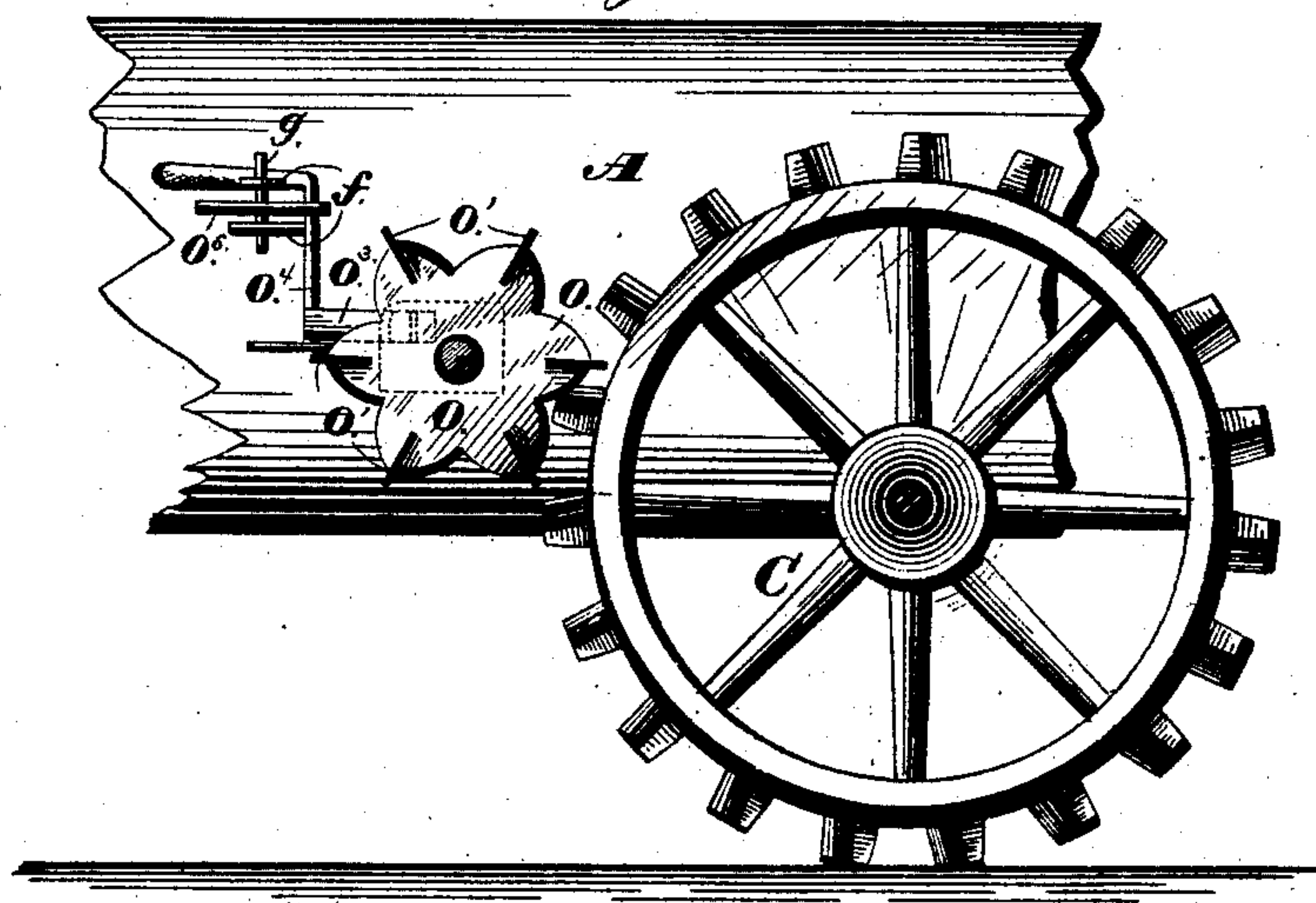
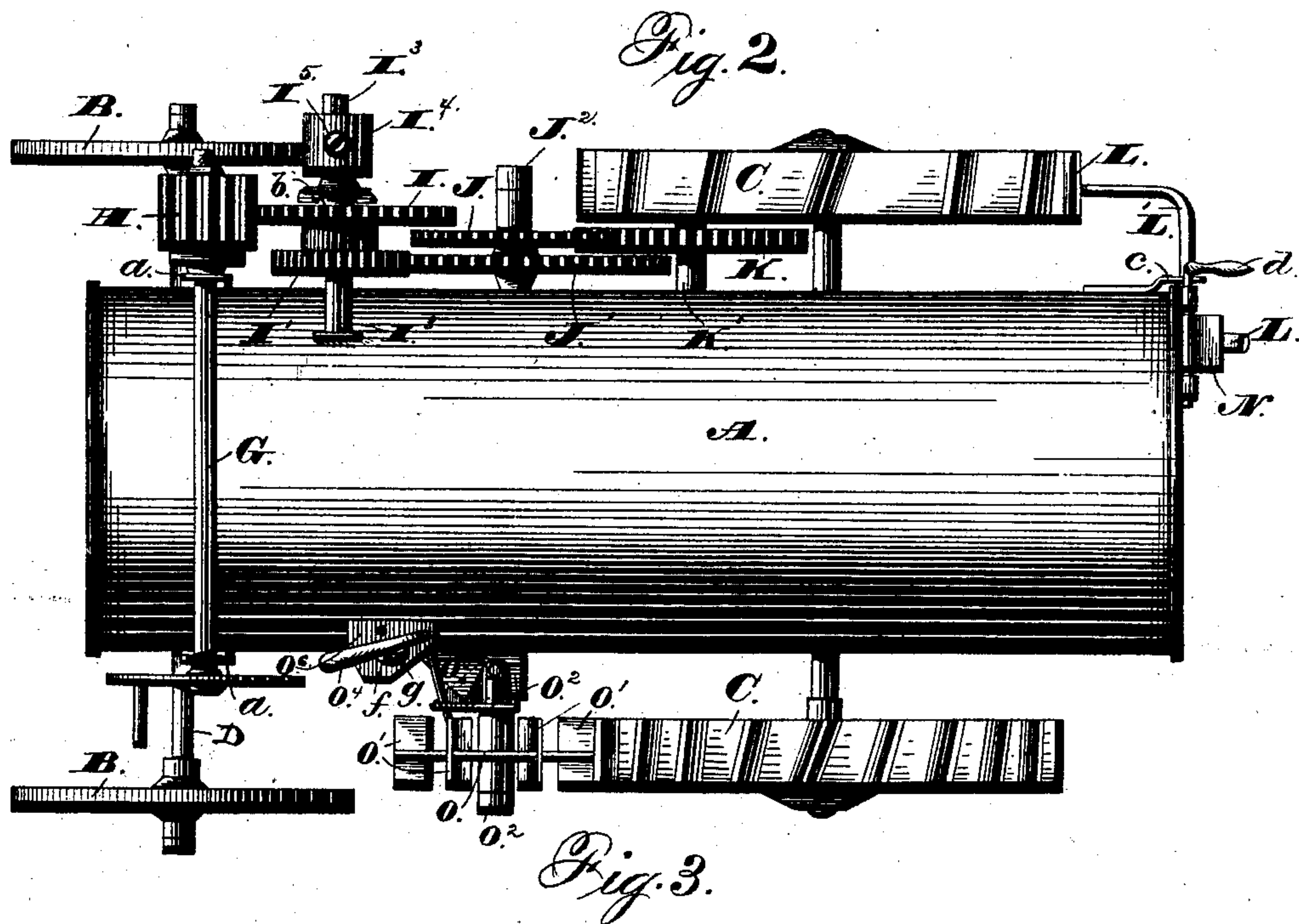
2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

DAVID LIPPY AND JACOB HUGHES, OF MANSFIELD, OHIO.

TRACTION-ENGINE.

SPECIFICATION forming part of Letters Patent No. 272,447, dated February 20, 1883.

Application filed October 14, 1882. (No model.)

To all whom it may concern:

Be it known that we, DAVID LIPPY and JACOB HUGHES, of Mansfield, in the county of Richland and State of Ohio, have invented certain new and useful Improvements in Traction Engines; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

Our invention relates to improvements in traction-engines, the object of the same being to provide means for keeping the treads of the driving-wheels free of dirt when the machine is in motion.

A further object of our invention is to provide means whereby an increased amount of power is imparted to the driving-wheels, when the engine is traveling over uneven or muddy roads, without decreasing the speed of the driving-shaft.

With these ends in view our invention consists, first, in the combination, with the driving-wheels of a traction-engine, of a scraper adapted to bear thereon and remove adhering mud.

Our invention further consists in the combination, with the driving-wheels having spurs or friction-blocks thereon, of yielding scrapers adapted to remove adhering mud from between the said spurs or blocks.

Our invention further consists in the combination, with the driving-shaft and driving-wheel, of interchangeable gear-wheels, by means of which an increase of power is imparted to the driving-wheel without affecting the speed of the driving-shaft.

Our invention further consists in certain details in construction and combinations of parts, as will be more fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a side view of our improved engine, some of the parts being shown in section. Fig. 2 is a plan view of the same, and Fig. 3 is a view of another form of scraper.

A represents the boiler, mounted on two front wheels, B, and two large driving-wheels, C. These front wheels, B, are journaled on the axle D, which latter is secured by ball-and-socket joint to the depending arm E, the up-

per end of which latter is rigidly secured to the lower side of the boiler.

F is a reach-bar, the rear end of which is rigidly secured to the fire-box below the boiler, while the front end thereof is loosely connected to the front axle immediately below or behind the ball-and-socket joint, so as not to interfere with the turning of the front axle. Ropes, chains, or any other suitable mechanism can be connected to the front axle for guiding the machine.

The mechanism for moving the machine forward consists of a driving-shaft and a driving wheel or wheels, with intermediate interchangeable gear-wheels, by which the speed of the machine is increased or diminished, as the case may be, and the driving or propelling power of the machine correspondingly decreased or increased. The driving-shaft G is journaled in the upright standards *a* near the front end of the boiler, and is provided with a suitable crank, to which the engine-pitman is connected, and with a wide pinion, H, which constitutes the first of the train or series of gear-wheels. This wide pinion H meshes with a larger pinion, I, which latter, together with the smaller gear-wheel or pinion, I', is rigidly secured to a single hub. This hub is loosely journaled on the shaft I³, and is provided outside of the wheel I with an annular groove, *b*, in which a curved finger of the collar I⁴ rests. This collar is held in place on the shaft I³ by the set-screw I⁵, and by loosening the set-screw and moving the collar longitudinally the hub is moved on the shaft so as to cause the small gear-wheel I' to mesh with the large gear-wheel I² or the large gear-wheel I to mesh with the wheel J, as slow or fast speed and a corresponding increase or decrease of propelling-power are required. The gear-wheels J and J' are also secured to one hub, and are journaled on the shaft J². The wheel J meshes with wheel K on the shaft K', which latter is situated between the large driving-wheels, and is provided on one or both ends (preferably both) with the small gear-wheels K², adapted to mesh with the annular gear or gears K³ on the driving wheel or wheels C. Thus it will be seen that when the large wheel I is in mesh with the wheel J the engine moves at its fastest rate of speed, and when the collar I⁴ is moved outward, so as to cause the small wheel

I' to mesh with the large wheel J', the speed of the engine is decreased; but a corresponding increase of propelling-power is gained, which increase, however, is dependent on the difference in size and number of teeth between the wheels I and I' and J and J'.

When traveling on a hard and even road the machine can be geared to travel at its fastest rate of speed; but when ascending heavy grades or running over muddy roads the speed of the machine can be decreased with a proportionate increase of power.

In traction-engines it is essential that mud adhering to the driving-wheels during the operation of the machine should be immediately removed, as it will pack between the friction-blocks and prevent them from performing their functions, and consequently allow the wheels to slip. To overcome this obstacle we have provided two forms of scrapers, either of which can be used singly or together, as shown in the drawings, and perform their function in a satisfactory manner.

The yielding scraper L, situated on the rear of one of the driving-wheels, is admirably adapted for the purpose in view, where the friction-blocks are widely separated, while the one on the opposite side is intended more particularly for use on wheels where the friction-blocks are close together. The scraper L is rigidly secured to the forward end of the bent lever L', and is so situated as to bear directly on the tread or periphery of the driving-wheel. This lever L', after leaving the scraper L, continues backward until even with the rear end of the fire-box, and is then bent inward at right angles, and is journaled to the face of the fire-box in the bearing c. The extreme end of the bent lever L' is then bent upward at right angles for a short distance, and is provided on its front face with a notch, in which the pivoted catch N rests when the scraper is elevated. This pivoted catch N is provided with an operating-handle, d, which, when turned or moved backward, causes the catch N to bear against the upwardly-turned portion of the bent arm and elevate the scraper above the top of the friction-blocks. When it is desired to hold the scraper elevated the catch N is moved until it enters the notch, where it remains as long as desired. The horizontal portion of the bent arm L' is provided with a depending lip, d', against which the upper end of the spring d' bears. The tendency of this spring is to keep the scraper down on the wheel and in contact therewith, and as the wheel revolves the scraper removes all the dirt between the friction-blocks and from the friction-blocks themselves. When the friction-blocks come in contact with the scraper it (the scraper) yields and moves upward and allows the blocks to pass. While moving upward it removes the dirt adhering to one side of the blocks and while descending removes it from the opposite side of the said blocks. If the blocks should be placed in an inclined direction, as shown in the drawings, instead of running straight across, the scraper

L would also be secured to the bent lever in the same inclination.

The revolving scraper (shown in Fig. 3) is, as before stated, adapted more particularly for use on traction-wheels where the friction-blocks are secured close together. This scraper consists of a wheel, O, having any suitable number of scrapers, O', secured thereto. This wheel O is journaled on the shaft O², the rear end of which is pivotally secured in any suitable manner to the side of the boiler.

O³ is an arm rigidly secured at its rear end to the vertical crank O⁴. The front end of this arm passes through an upward projection on the shaft O², and when the crank O⁴ is turned the arm O³ turns with it and moves the wheel O against or away from the driving-wheel, as the case may be. The vertical crank O⁴ is provided with two lips or projections, f, having perforations therein, which latter are adapted to register with any one of a series of perforations formed in the plate O⁶, which is secured to the boiler between the lips f. A pin, g, is adapted to be passed through the perforations in the lips and plate and hold the wheel O directly in contact with the driving-wheel or away from the wheel, as desired. The scrapers on the wheel O are formed and situated so as to register with the friction-blocks on the tread of the wheel. When the wheel O is in contact with the driving-wheel one of the scrapers O' rests between two of the friction-blocks, and when the machine is started forward the motion of the driving-wheels is imparted to the rotary wheel O. As the wheel revolves, the scrapers thereon move in the arc of a circle between the friction-blocks and remove the adhering mud. If the blocks are secured in an inclined direction, as shown in the drawings, the scrapers O' would also be secured to the wheel O in a correspondingly inclined position.

Numerous means can be devised for holding the scrapers in position, and hence we would have it understood that we do not limit ourselves to the exact construction shown and described, but consider ourselves at liberty to make such changes and alterations as come within the spirit and scope of our invention.

Having fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a traction-engine, the combination, with one of the traction-wheels, provided with a driving-gear, a pinion meshing with said driving-gear, and a crank-shaft located over the boiler, of a combined high and low speed train of gearing situated at one side of the boiler, and arranged to transmit the power of the engine to the traction-wheels, two of the gears of said train being mounted on a counter-shaft and adapted to be laterally adjusted thereon, substantially as set forth.

2. In a traction-engine, the combination, with one of the ground or traction wheels, provided with a driving-gear and an engine crank-shaft, the latter being located over the boiler and

having a pinion secured thereto, of a counter-shaft located at the side of the boiler, and provided with two different size gear-wheels secured to an adjustable hub or sleeve, and another counter-shaft located at the side of the boiler and provided with two different size gear-wheels, said gear-wheels and pinions being constructed and arranged at the side of the boiler and adapted to be adjusted for high or low speed, substantially as set forth.

3. In a traction-engine, the combination, with a traction-wheel provided with friction-blocks, of a pivoted scraper arranged to engage the tread of the traction-wheel between the friction-blocks, and to ride over the blocks and to remove the mud therefrom, and a spring for retaining the scraper in engagement with the tread and friction blocks, substantially as set forth.

4. In a traction-engine, the combination, with a traction-wheel provided with friction-blocks, of a yielding pivoted scraper arranged to en-

gage the tread of the wheel and the friction-blocks and remove the mud therefrom, and devices for retaining the scraper out of engagement with the traction-wheel, substantially as set forth.

5. In a traction-engine, the combination, with a traction-wheel, of a laterally-adjustable rotary scraper, substantially as set forth.

6. In a traction-engine, the combination, with a traction-wheel, of a laterally-adjustable rotary scraper, and devices for retaining it in or out of engagement with the traction-wheel, substantially as set forth.

In testimony whereof we have signed this specification in the presence of two subscribing witnesses.

DAVID LIPPY.
JACOB HUGHES.

Witnesses:

HENRY C. HEDGES,
M. E. DOUGLAS.